

Felindre Compressor Station**Waste Minimisation Audit**

PPC Permit Number	RP3232LD
Installation Address	Felindre Compressor Station Felindre Nr Swansea SA5 7LU
Date of Version	30 th September 2022
Purpose of Report	Site waste minimisation report as detailed in Condition 1.5.1

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1.0 Introduction and Scope

As a requirement of the PPC permit improvement condition – IC5, the following document will identify the main waste types that are produced on the Felindre Compressor Site.

Permit condition 1.5.1 requires that a waste minimisation review is carried out every four years.

“1.5.1 The Operator shall:

- a) take appropriate measures to ensure that waste produced by the activities is avoided or reduced, or where waste is produced it is recovered wherever practicable or otherwise disposed of in a manner which minimises its impact on the environment;*
- b) review and record at least every 4 years whether changes to those measures should be made; and*
- c) take any further appropriate measures identified by a review.*

The report has taken into account the requirements of the Agency Technical Guidance Note, Section 2.4.2.

The waste segregation streams are identified along with the amount of waste generated in each stream from the site.

Where appropriate reduction initiatives will be detailed along with their impact on the overall waste performance.

The site permit was issued in 2nd July 2007 and the ‘Waste Minimisation Audit’ was due 2 years from this date. However as the installation in 2009 was still in commissioning and not operationally accepted the audit was not carried out as the waste profile would not have been representative.

As of 30th June 2014 the site is still not commissioned however permanent members of National Grid staff are stationed at site and maintenance activities have been taking place as of May 2009. It therefore seems prudent to present the waste data from May 2009 with the caveat that the installation is not yet operational and the profile may change. As of the date of this report the ‘Waste Minimisation Review’ will be carried out on at least a 4 yearly basis as required by permit condition 1.5.1.

2.0 Waste Segregation Streams

Table 2.1 identifies the main waste types that are produced on site along with the typical sources of the waste.

Type	Disposal Route	Waste Source
Non-Hazardous	Landfill	General waste – non-recyclable packaging, inert material (concrete and soil) and food waste
	Recycled	Cardboard, paper, wood, metal and recyclable packaging
Hazardous	Landfill	Oil filters, interceptor and cesspit sludges and waste asbestos
	Recycled	Water/oil mixtures, wastes oils, oil contaminated materials (absorbent matting, rags, cleaning materials), batteries, WEEE, fluorescent tubes, aerosols and aqueous cleaning solutions

3.0 Compressor Station Processes

Fig 3.0 shows the overall raw material inputs and waste stream outputs from the compressor site.

Raw Materials

3.0 Compressor Station Raw Material and Waste Process Flow

Waste

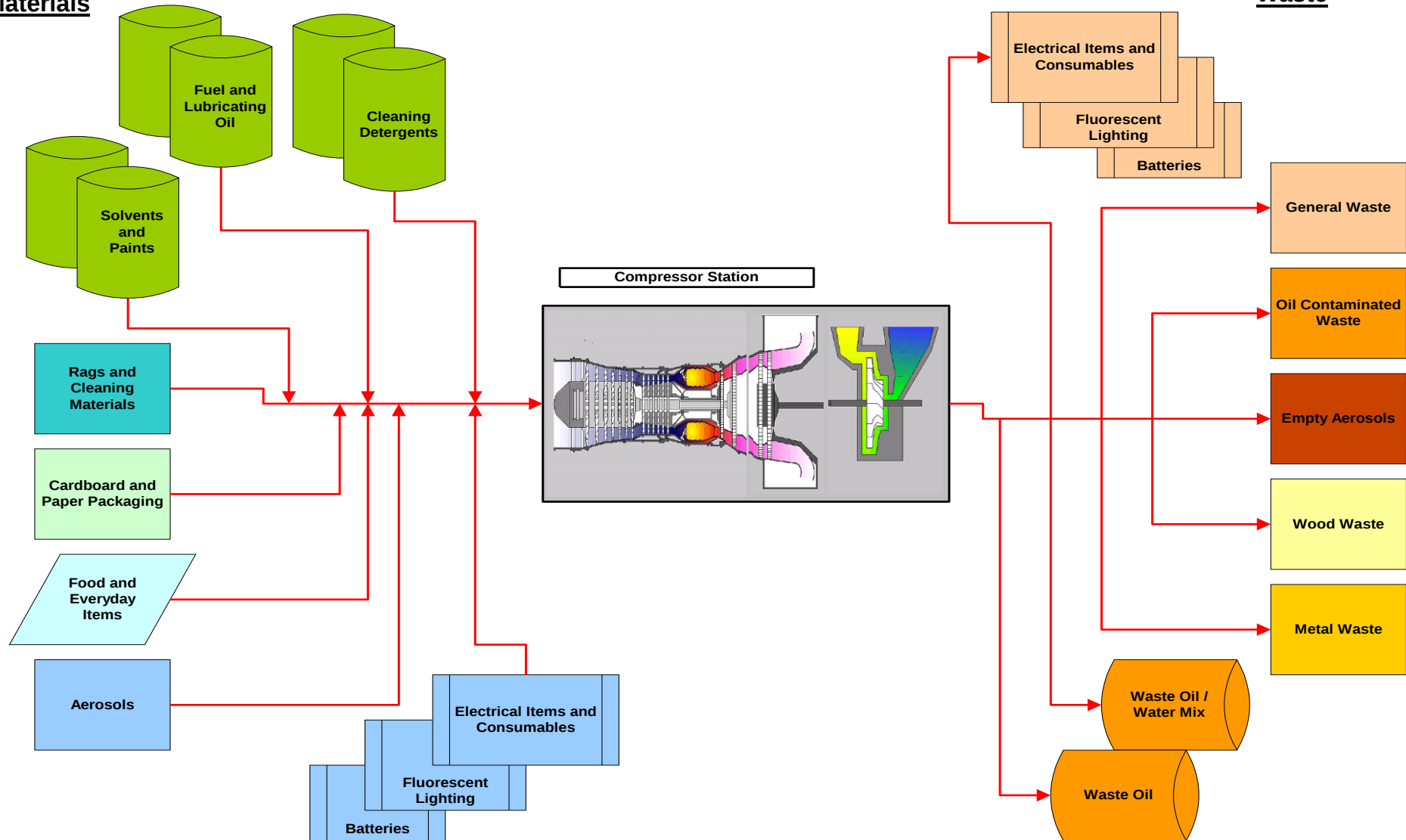


Table 3.1 shows the main site processes, indicating the raw materials used and the waste outputs.

Process Area	Process	Raw Materials Used	Waste Stream Produced	Waste Storage / Uplift
Process General Operations	General site operations – site monitoring, reporting and management - compressors running or idle	Everyday domestic items – food, paperwork and cleaning materials	- General waste - Waste office card and paper - Waste card packaging - Waste plastic packaging	- General waste bin - All office waste paper and card to be segregated and collected in designated container - All waste packaging to be individually segregated and collected in designated container/ skip
Maintenance - Mechanical	Gas turbine washes	Water-based detergent and solvent washing fluids and cleaning materials	- Oil / water emulsion mixture with airborne detritus contamination - Oil contaminated materials - cloths and absorbent matting	- Small on site tank for tanker uplift. - Labelled leak free sealable container
	Process machinery planned routine maintenance carried out on a daily, weekly or monthly basis: - Oil changes - Oil and air filter changes - Consumable part changes	Lubrication oils, filters, cleaning materials, absorbent matting, cloths and consumable parts.	- Waste oil - Oil contaminated materials – cloths, filters and absorbent matting - Scrap consumable parts – metal, plastic varied gasket materials - Waste aerosols - Waste wood packaging - Waste card packaging - Waste plastic packaging	- Small on site tank for tanker uplift. - Labelled leak free sealable container - Metal parts segregated cleaned free from oil and collected in designated skip - All waste packaging to be individually segregated and collected in designated container / skip
	Cleaning spillages: maintenance activities, process equipment leaks	Absorbent matting, cloths and cleaning materials	Oil contaminated materials - cloths and absorbent matting	Labelled leak free sealable container

Process Area	Process	Raw Materials Used	Waste Stream Produced	Waste Storage / Uplift
Maintenance – Electrical	Process machinery planned routine maintenance carried out on a daily, weekly or monthly basis: - Panel air filter changes - Consumable part changes	Assorted lamps, fluorescent tubes, filters, assorted batteries and other consumable parts	- Waste batteries - Waste fluorescent tubes - Waste aerosols - Waste wood packaging - Waste card packaging - Waste plastic packaging	- Separate labelled leak free sealable container for all items - All waste packaging to be individually segregated and collected in designated container / skip
Equipment and Process Modifications	Larger work undertaken on the site for the modification of either plant equipment or processes. To include mechanical, electrical and civil work	New plant equipment, pipework, civil work, hard standing.	- Redundant equipment - Waste metal pipework - Waste inert material - concrete, asphalt, brick etc.. - Waste WEEE - Waste wood packaging - Waste card packaging - Waste plastic packaging	- Labelled leak free sealable container /skip - Metal parts segregated cleaned free from oil and collected in designated skip - All inert waste to be collected separately in designated skip - All waste packaging to be individually segregated and collected in designated container / skip
Environmental Systems Maintenance	Site drainage interceptor cleaning and removal of interceptor sludges. Interceptor cleaning is carried out on a regular basis but can vary due to levels of contamination found and rainfall.	N/A	Waste interceptor sludges (predominately water and silt but may contain some oil contamination)	Uplift by vacuum tanker
	Site sewage system cleaning and maintenance. Biodisc unit cleaning and removal of sewage sludges	N/A	Waste sewage sludges	Uplift by vacuum tanker

4.0 Waste Performance

Table 4.1 shows the waste performance, for 2018 to 2021 years, in each of the waste streams produced on site

Waste Stream	EWC	2018 (kgs)	2019 (kgs)	2020 (kgs)	2021 (kgs)
General Waste	20-03-01	14,246	10,201	3,375	631
Dry Mixed Recycling	15-01-06	2,094	1,246		475
Waste paint	08-01-11*			20	
Waste Printing Toner	08-03-18		200		
Waste adhesives and sealants	08-04-09*		20		
Mineral-Based Non-Chlorinated Oils	13-02-05*		205		
Synthetic engine, lubricating oils	13-02-06*		15		
Contaminated packaging	15-01-10*		70		
Absorbents, Filter Materials	15-02-02*		720		
Filter material	15-02-03		300		
Oil filters	16-01-07*		5		
Organic waste	16-03-06		400		
Gas in pressure containers	16-05-04*		135		
Batteries	16-06-01*			120	
Batteries	16-06-04		60		
Fluorescent Tubes	20-01-21*		280		50
Paper and card	20-01-01			245	
Discarded Electrical Equipment	20-01-36		2,000		1,080

Wood	20-01-38	1,420		340	
Metals	20-01-40	2,850	200		

* - Hazardous Waste

5.0 Conclusions

General and Non-Hazardous Waste

The general waste total for the years reviewed shows that this is the largest single waste stream from the site.

There would be an expectation that the general waste produced would equate to about the average for a normal domestic household of 386 kgs per year per person (*Data from Department for National Statistics – Local Authority Collected Waste Statistics (England) 2012/13 – Average Kilograms per person per year.*).

There is normally up to 7 permanent regular employees based on site, a total of about 2,700kgs per year would be expected. The general waste level from site in 2018 and 2019 has been above that figure, due to increased site occupancy from project work.

Hazardous Waste

All the other waste streams are predominately linked to maintenance of the equipment and infrastructure of the site. This is harder to predict and to reduce as it is very dependant on two elements;

1. The running hours of the stations compressors and ancillary plant
2. The reliability of that plant.

Increased running due to demand on the National Transmission System through the Felindre installation will increase the level of maintenance required and so the associated waste produced due to that maintenance. Some maintenance may be time based and so items will be removed and waste produced without the equipment running.

Some activities undertaken on site are on an infrequent basis, and have not shown up on the analysis made. Due to this, site overall waste amounts could vary in amounts and waste stream types from year to year. In general, the levels of waste from the site are low.

Further Waste Developments

The electric VSD compressor is not operational and therefore the waste streams and amounts have not been determined. Once commissioning has been completed, wastes will need to be reviewed after a period of VSD operation to ensure that the best disposal and storage options are being used. Also this review should identify any effect on waste produced from the operation and maintenance of the older equipment.

Recommended Actions

Table 6.1 details the waste minimisation report recommended actions along with planned completions.

Actions	Completion
Evaluate electric VSD associated waste production, storage and disposal	On going following VSD operation
No significant recommendations arising. Monitoring of waste management to continue.	N/A
Set up and complete an annual waste review workshop on site. Identify specific waste stream issues to enable continued improvement in overall waste performance. Identify upcoming and completed projects and maintenance that may have an effect on waste volumes	30 September 2023 - and annually ongoing